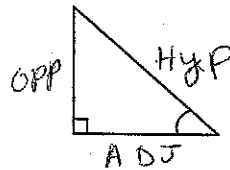
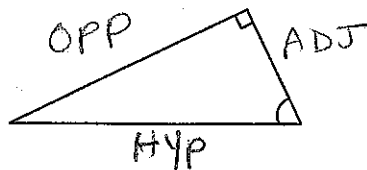


# Geometry Unit 4 – Trigonometry Review

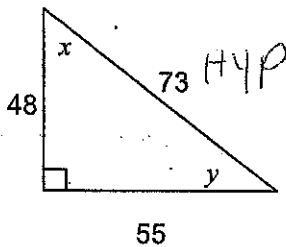
Name: \_\_\_\_\_

**Part 1:** You should be able to label all sides and angles in a right triangle.

Label in the triangles below: the angle (theta), opposite, adjacent, hypotenuse



**Part 2:** You should be able to find the sine, cosine, or tangent proportions from a triangle.



$$\sin x = \frac{55}{73}$$

$$\cos x = \frac{48}{73}$$

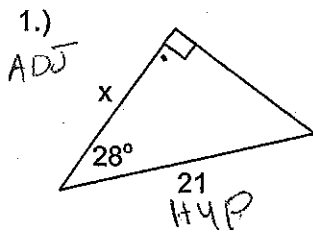
$$\tan x = \frac{55}{48}$$

$$\sin y = \frac{48}{73}$$

$$\cos y = \frac{55}{73}$$

$$\tan y = \frac{55}{48}$$

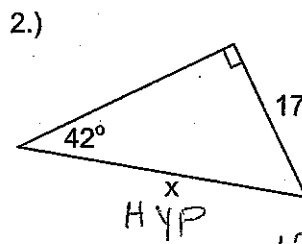
**Part 3:** You should be able to find the missing sides of a triangle using trig.



$$\cos 28^\circ = \frac{x}{21}$$

$$.8829 = \frac{x}{21}$$

$$18.54 = x$$



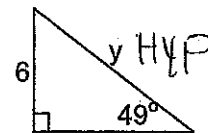
$$\sin 42^\circ = \frac{17}{x}$$

$$.6691 = \frac{17}{x}$$

$$(x)(.6691) = 17$$

$$x = \frac{17}{.6691} = 25.41$$

3.) Find the perimeter (add up all the side lengths).



$$\sin 49^\circ = \frac{6}{y}$$

$$.7547 = \frac{6}{y}$$

$$(y)(.7547) = 6$$

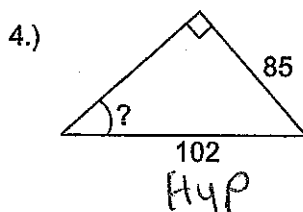
$$y = \frac{6}{.7547}$$

$$\cos 49^\circ = \frac{x}{y}$$

$$\cos 49^\circ = \frac{x}{7.91}$$

$$.6428 = \frac{x}{7.91}$$

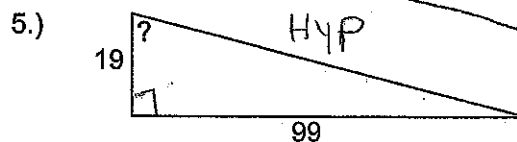
**Part 4:** You should be able to find missing angles of a triangle using inverse trig.



$$\sin ? = \frac{85}{102} = .8333$$

$$? = \sin^{-1} .8333$$

$$? \approx 57^\circ$$



$$\tan ? = \frac{99}{19}$$

$$? = \tan^{-1} 5.21$$

$$? = 79^\circ$$

$$y = 7.95$$

$$(7.95)(.6428) = x$$

$$5.11 = x$$

Perimeter =

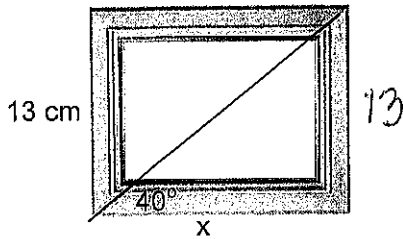
$$x + y + 6 =$$

$$5.11 + 7.95 + 6 =$$

$$19.07$$

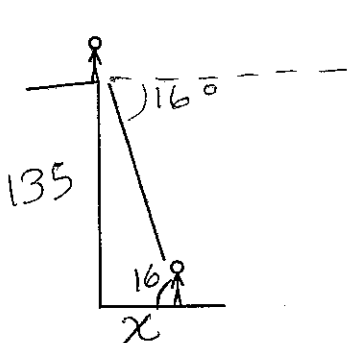
**Part 5:** You should be able to apply all topics of this unit to word problems. **Label all diagrams. Show all work. Give your answer in the correct units.**

6.) A photo frame has the dimension below. Find the width of the frame.



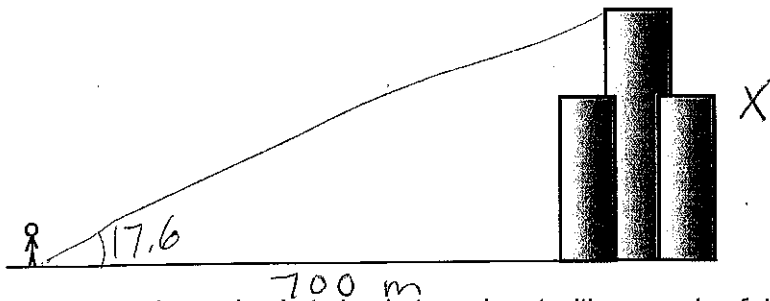
$$\begin{aligned} \tan 40^\circ &= \frac{13}{x} \\ .8391 &= \frac{13}{x} \\ x(.8391) &= 13 \\ x &= \frac{13}{.8391} \\ x &= 15.49 \text{ cm} \end{aligned}$$

7.) A woman standing on the top of a 135 foot cliff looks down at an angle of  $16^\circ$  and sees her friend walking near the bottom. What is the distance between the woman and her friend?



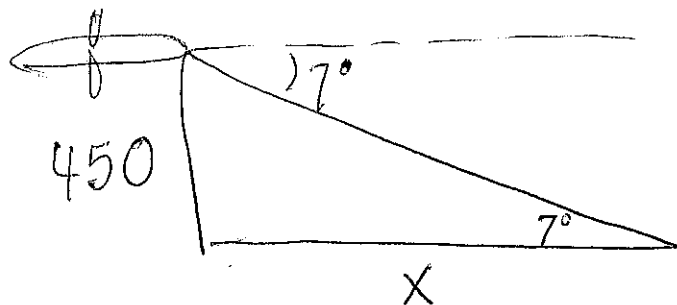
$$\begin{aligned} \tan 16^\circ &= \frac{135}{x} \\ .2867 &= \frac{135}{x} \\ x(.2867) &= 135 \\ x &= \frac{135}{.2867} \approx 470.88 \text{ ft.} \end{aligned}$$

8.) You are standing on the ground 700 meters away from Detroit's tallest building, the Renaissance Center. You are looking at an angle of elevation of  $17.6^\circ$  and see the top. How tall is the building?



$$\begin{aligned} \tan 17.6^\circ &= \frac{x}{700} \\ .31 &= \frac{x}{700} \\ (.31)(700) &= x \\ 217_m &= x \end{aligned}$$

9.) An airplane is coming in to land at an airport with an angle of depression of  $7^\circ$ . It needs to drop 450 feet vertically. What will be the distance of the actual path that the plane takes through the sky?



$$\begin{aligned} \tan 7^\circ &= \frac{450}{x} \\ .1228 &= \frac{450}{x} \\ x(.1228) &= 450 \\ x &= \frac{450}{.1228} \\ x &= 3,664 \text{ ft} \end{aligned}$$